AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1.-11. (Cancelled).

12. (Currently Amended) A system for operating a rechargeable battery, said system comprising:

means for charging said rechargeable battery to a predetermined maximum voltage;

means for determining a first dynamic charging range for the rechargeable battery for a first plurality of charging cycles; and

means for calculating an offset error for said determining means while there is no more than a relatively low load on the rechargeable ~~battery~~ battery,

wherein the means for charging comprises:

means for delivering a predetermined charging current to the battery until the battery is charged to the predetermined maximum voltage; and

means for successively delivering progressively smaller charging currents to the battery until a predetermined minimum charging current of the progressively smaller charging currents is reached, wherein each of progressively smaller charging currents is delivered to the battery until the battery is charged to the predetermined maximum voltage.

13. (Currently Amended) The system according to ~~claim 44~~ claim 12, wherein the charging means is configured to deliver the decreasing charging currents after charging the rechargeable battery to said predetermined maximum voltage using the predetermined charging current.

14. (Canceled)

15. (Currently Amended) The system according to ~~claim 44~~ claim 12, wherein said predetermined charging current and said predetermined minimum charging current are different.

16. (Canceled).

17. (Currently Amended) The system according to ~~claim 44~~ claim 12, wherein said predetermined charging current may be dynamically adjusted based on parameters of said rechargeable battery.

18. (Canceled).

19. (Currently Amended) The system according to ~~claim 44~~ claim 12, wherein said predetermined minimum charging current may be dynamically adjusted based on parameters of said rechargeable battery.

20. (Original) The system according to claim 12, wherein said predetermined maximum voltage may be dynamically adjusted based on parameters of said rechargeable battery.

21. (Canceled)

22. (Currently Amended) The system according to ~~claim 44~~ claim 12, wherein said predetermined minimum charging current is less than 1 ampere.

23. (Original) The system according to claim 12, wherein said rechargeable battery is used for an implantable medical device.

24. (Original) The system according to claim 23, wherein said implantable medical device is a prosthetic hearing implant.

25.-29. (Canceled)

30. (Previously Presented) The battery charger according to claim 39, wherein said measuring circuit is further configured to compensate for the calculated offset error of the measuring circuit.

31. (Previously Presented) The battery charger according to claim 39, wherein said parametric data includes a cumulative amount of charge delivered to the rechargeable battery during the first cycle.

32. (Previously Presented) The battery charger according to claim 39, wherein said electronic device is an implantable medical device.

33. (Previously Presented) The battery charger according claim 32, wherein the implantable medical device is a receiver/stimulator unit of prosthetic hearing implant system.

34.-38. (Cancelled).

39. (Currently Amended) A battery charger for a rechargeable battery of an electronic device, the battery charger comprising:

a charge controller configured to charge the rechargeable battery during a cycle; and

a measuring circuit configured to measure parametric data during the cycle, and to calculate an offset error of the measuring circuit while no load is placed on the rechargeable ~~battery~~ battery,

wherein the measuring circuit comprises:

a differential amplifier configured to amplify voltage drop across a sense resistor, and to output a current signal proportional to current flowing into or out of the rechargeable battery based thereon;

an integrator configured to integrate the current signals from the differential amplifier;

a detection block configured to output a voltage signal when the integration of the integrator reaches a threshold value; and

digital logic configured to count the number of received output voltage signals.

40. (Previously Presented) The battery charger of claim 39, further comprising:

an auxiliary power source configured to power the electronic device independently of the rechargeable battery, and configured to power the measuring circuit independently of the rechargeable battery.

41. (Cancelled)

42. (Currently Amended) The battery charger according to ~~claim 41~~ claim 39, wherein the ~~measuring circuit further comprises:~~

digital logic ~~circuit~~ receives ~~configured to receive~~ the detection signals from the detection block, maintain a count of the number of the detection signals received, and generate an asynchronous interrupt after receiving a predetermined number of the detection signals.

43. (Previously Presented) The battery charger of claim 42, wherein the measuring circuit further comprises:

a microcontroller configured to receive the asynchronous interrupt, calculate the offset error, and compensate for the offset error.

44. (Cancelled)

45. (Previously Presented) The system of claim 12, wherein the first dynamic charging range comprises first upper and lower charge values for the battery, wherein the first dynamic charge range is calculated based on a cumulative amount of charge delivered to the rechargeable battery during a first initial cycle,

wherein the means for charging is configured to charge the rechargeable battery until the cumulative amount of charge equals the first upper charge value during each of the plurality of first charging cycles.

46. (Previously Presented) The system of claim 45, wherein the means for determining is configured to determine a second dynamic charging range for the rechargeable battery for a second plurality of charging cycles,

wherein the second dynamic charging range comprises second upper and lower charge values for the rechargeable battery, wherein the second dynamic charge range is calculated based on a cumulative amount of charge delivered to the rechargeable battery during a second initial cycle after the plurality of first charging cycles, and

wherein the means for charging is configured to charge the rechargeable battery until the cumulative amount of charge equals the second upper charge value during each of the plurality of second charging cycles.

47. (Currently Amended) A battery charger for a rechargeable battery of an electronic device, the battery charger comprising:

a charge controller configured to charge the rechargeable battery during a first cycle; ~~and~~

a measuring circuit configured to measure one or more parametric data during the first cycle, and to calculate an offset error of the measuring circuit while no more than a relatively low load is placed on the rechargeable ~~battery~~ battery,

wherein the measuring circuit comprises:

a differential amplifier configured to amplify voltage drop across a sense resistor, and to output a current signal proportional to current flowing into or out of the rechargeable battery based thereon;

an integrator configured to integrate the current signals from the differential amplifier;

a detection block configured to receive an output voltage from the integrator, and configured to output detection signals each indicating that a quantized unit of charge has been processed; and

digital logic configured to count the number of received output detection signals.

48. (Previously Presented) The battery charger of claim 47, further comprising:

an auxiliary power source configured to power the electronic device independently of the rechargeable battery, and configured to power the measuring circuit independently of the rechargeable battery.

49. (Cancelled)

50. (Currently Amended) The battery charger according to ~~claim 49~~ claim 47, wherein the ~~measuring circuit further comprises:~~

digital logic ~~circuit~~ receives ~~configured to receive~~ the detection signals from the detection block, maintain a count of the number of the detection signals received, and generate an asynchronous interrupt after receiving a predetermined number of the detection signals.

51. (Previously Presented) The battery charger of claim 50, wherein the measuring circuit further comprises:

a microcontroller configured to receive the asynchronous interrupt, calculate the offset error, and compensate for the offset error.

52. (Previously Presented) The battery charger according to claim 47, wherein said measuring circuit is further configured to compensate for the calculated offset error of the measuring circuit.

53. (Previously Presented) The battery charger according to claim 47, wherein said electronic device is an implantable medical device.

54. (Previously Presented) The battery charger according claim 52, wherein the implantable medical device is a receiver/stimulator unit of prosthetic hearing implant system.

55. (Previously Presented) The battery charger according to claim 47, wherein said parametric data includes a cumulative amount of charge delivered to the rechargeable battery during the first cycle.

56. (Previously Presented) The system according to claim 12, wherein the means for calculating the offset error calculates the offset error for said determining means while there is no load on the rechargeable battery.

57. (Currently Amended) The battery charger according to ~~claim 41~~ claim 39, wherein the measuring circuit is configured to calculate the offset error by calculating an offset current value of the measuring circuit, and is configured to compensate for the calculated offset error of the measuring circuit by providing to the integrator a compensating current value, wherein the offset current value and the compensating current value have the same magnitude and opposite signs.

58. (Previously Presented) The battery charger of claim 42, wherein the measuring circuit is configured to periodically adjust the count maintained by the digital logic circuit so as to compensate for the calculated offset error of the measuring circuit.

59. (Previously Presented) The battery charger of claim 42, wherein the measuring circuit is configured to provide a clock signal to the digital logic circuit, wherein the digital logic circuit adjusts the count in accordance with a frequency of the clock signal so as to compensate for the calculated offset error of the measuring circuit, and wherein the frequency of the clock signal is the same as a frequency at which the detection block outputs the detection signals while no load is placed on the rechargeable battery.

60. (New) The battery charger of claim 41, wherein the detection block is configured to receive an output voltage from the integrator, and wherein the output voltage signal outputted

by the detection block is an output detection signal each indicating that a quantized unit of charge has been processed.